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ABSTRACT

This pamphlet answers many questions about demographic aspects of hearing-impaired individuals, such as the number of hearing-impaired and deaf persons in the United States, the number with hearing problems that restrict communication, the number of hearing-impaired students and number of deaf college students, the demographic groups which have a greater chance of being hearing-impaired, the incidence of hearing impairment, leading causes of deafness, and the percentage of schools for the hearing-impaired which use the "oral" method versus the "speech and sign" method of communication. Five tables and ten references are provided. (JDD)

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DEMOGRAPHIC ASPECTS OF HEARING IMPAIRMENT:

QUESTIONS AND ANSWERS

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DEMOGRAPHIC ASPECTS OF HEARING IMPAIRMENT: QUESTIONS AND ANSWERS

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1) How many persons are hearing impaired in the United States?

In 1985, 21.2 million persons had hearing problems (*Table 1*). The primary source for estimates of hearing impairment is the Health Interview Survey (HIS), conducted annually by the National Center for Health Statistics (NCHS). Among the many health-related questions, each year's survey contains a question about family members with hearing problems. This enables NCHS to make annual estimates of the hearing impaired population, defined as those persons reporting any type of hearing problem.

Table 1- Estimates of the total population and the hearing impaired population by age, United States, 1985.

Age Group	Total	Hearing Impaired
Total	233,721,000	21,198,000
Under 18 years	62,745,000	1,203,000
18-44 years	99,418,000	4,955,000
45-64 years	44,513,000	7,077,000
65 years & over	27,044,000	7,963,000
65-74 years	16,692,000	4,372,000
75 years & over	10,352,000	3,591,000

Source: National Center for Health Statistics, Data from the National Health Survey, Series 10, No. 160, Tables 62, 78, 1987.

2) How many persons report they are deaf in the United States?

Unfortunately, there are no recent national surveys which can be used to make estimates of the deaf population. Although the Health Interview Survey does include a question on overall hearing difficulty, only the 1971 and 1977 surveys included self-evaluations of level of hearing impairment. In those surveys, the deaf population was defined as those persons who reported themselves as deaf in both ears. Based on the 1977 sample, an estimated 292,000 persons categorized themselves as deaf. Based on the assumption the prevalence of deafness has remained constant, an estimated 346,000 persons would have reported themselves as "deaf" in 1985.

About half of this reported deaf population indicated they were prevocationally deaf, i.e., the age at onset of their hearing loss was before 21 years. This estimate is based on the Health Interview Survey of 1971, the last year with a question on age at onset of hearing loss (Gentile, 1975; and Ries, 1982).

3) How many persons have hearing problems that restrict communication?

A common method used to classify the general population by hearing status is to make estimates based on the ability to hear and understand speech. The 1984 Survey of Income and Program Participation (SIPP), the most recent national survey that includes questions on degrees of hearing impairment, shows that 4.0 percent of the population reported they were able to hear what is said in normal conversation but with difficulty *(Table 2)*. In addition, 0.3 percent were not able to hear what is said in normal conversation (Department of Commerce, 1986).

Because SIPP is based only on the non-institutionalized population 15 years and older, estimates for the total U.S. population are not available. However, the Health Interview Surveys of 1971 and 1977 include data on the population 3 years of age and over by degrees of hearing impairment. The 1977 results indicate that 0.4 percent of the population could at best hear and understand speech when shouted into the better ear.

Table 2- Estimates of the population 15 years of age and older by ability to hear what is said in normal conversation, United States, 1984.

Hearing What is Said in Normal Conversation	Number	Percent
Total	180,987,000	100.0
No difficulty	173,294,000	95.7
With difficulty	7,213,000	4.0
Unable	481,000	0.3

Source: United States Bureau of the Census, Current Population Reports, Household Economic Studies, Series P-70, No. 8, Table 2, 1986.

4) Which demographic groups have a greater chance of being hearing impaired?

Because of the strong association between age and hearing impairment, the elderly are more likely to have hearing problems than any other age group. This finding is confirmed by both the Health Interview Survey and the Survey of Income and Program Participation. According to HIS, persons 65 years of age and older are almost eight times more likely to be hearing impaired than persons under age 45 *(Table 3)*. Moreover, SIPP results provide an estimate of older persons with serious communication problems due to decreased hearing ability. Of the 26,422,000 persons 65 years and older, 14.5 percent reported difficulty hearing what is said in normal conversation and 0.7 percent were not able to understand normal conversation.

The prevalence of hearing impairment also varies by sex, race, and place of residence. Among the highlights of the 1985 Health Interview Survey are the following:

- males are more likely to be hearing impaired than females;
- whites are more likely to be hearing impaired than blacks;
- persons living in rural areas are more likely to be hearing impaired than persons living in metropolitan areas.

The greater rates of males and whites hold for all ages *(Table 3)*. The prevalence of hearing impairment by place of residence is not available by age. However, 106 of every 1,000 persons living in rural areas in 1985 were hearing impaired, compared to 86 per 1,000 for metropolitan areas.

Table 3- Number of persons with hearing impairments per 1,000 persons, by age, sex, and race, United States, 1985.

		Sex		Race	
Age Group	Total	Male	Female	White	Black
Total	90.7	107.4	75.1	96.9	54.3
Under 45	37.9	45.5	30.5	41.3	18.1
45-64	159.0	208.0	114.3	163.3	128.4
65 & Over	294.0	364.2	245.9	299.6	252.5
65-74	261.9	323.2	214.2	265.9	237.8
75 & Over	346.9	443.1	291.4	353.4	277.4

Source: National Center for Health Statistics, Data from the National Health Survey, Series 10, No. 160, Tables 57,58,59,1987.

5) What is the incidence of hearing impairment in the United States?

It should be pointed out that data in the previous sections are for prevalence rather than for incidence of hearing impairment. Incidence refers to the number of new cases of a particular condition in a specific time period, while prevalence refers to the total number with the condition at a particular time.

There are almost no reliable incidence data on hearing impairment in the United States (Schein, 1987). Although such data would be extremely useful in documenting fluctuations in the numbers of persons who become hearing impaired either from a specific etiology or from aging, various arguments have been cited for not collecting incidence data. In the case of screening infants for impairments that have occurred at birth, some audiologists have claimed such tests are often unreliable. Others believe that routine screening is too expensive. However, experts in the field of hearing impairment claim the derived benefits would far exceed the modest expense required for infant screening programs. Collecting incidence data for persons who become hearing impaired later in life raises more problematic methodological issues. Hearing impairments caused by age are often a slow, gradual process. Determining the onset of an impairment is extremely difficult without the use of frequent audiometric tests, a practice far too impractical to be employed in the design of a large survey.

6) What are the leading causes of deafness?

Heredity and meningitis are the leading causes among deaf students in 1985 *(Table 4)*. These data are from the Annual Survey of Hearing Impaired Children and Youth, which collects data directly from schools offering preschool, primary, and/or secondary education to hearing impaired students and includes 48,720 students in the 1985-1986 school year. Although the majority of these students had a known cause of deafness, a large percentage had unknown causes, most of which are probably genetic in nature (Nance and Sweeney, 1975). Of the school-age population with known causes, maternal rubella was, until recently, the leading cause of deafness due to the epidemic of 1964-1965. However, as those affected by rubella moved out of the school-age population, the percentage of students with that etiology sharply decreased. The share of students with maternal rubella as a cause was reduced by one half from the 1982-1983 to the 1985-1986 school years (Brown, 1986). Although meningitis is a leading cause of deafness, the recent development of a meningitis vaccine may sharply reduce the incidence of this disease (Wolff and Brown, 1987).

Table 4- Percent distribution of causes of impairment for hearing impaired students, 1972-1973, 1982-1983 and 1985-1986.*

Cause	School Year 1972-73	1982-83	1985-86
Total, all causes	100.0	100.0	100.0
Cause unknown	48.6	39.5	43.0
Cause reported	51.4	60.5	57.0
Maternal rubella	17.6	16.3	8.0
Heredity	8.5	11.6	12.4
Meningitis	5.3	7.3	8.6
Otitis media	1.6	3.0	3.5
Other causes at birth			
Prematurity	5.2	4.0	4.4
Pregnancy complications	3.2	3.4	3.0
Trauma	2.3	2.4	2.4
Rh incompatibility	3.1	1.4	0.9
Other causes after birth			
High fever	2.3	3.1	3.1
Infection	1.5	2.7	2.8
Trauma	0.9	0.8	0.7
Measles	2.1	0.8	0.5
Mumps	0.6	0.2	0.1
Other causes	2.5	8.0	7.5

**Because some students reported more than one etiology, the sum of the cause specific percentages exceeds the total percentage of cases with known causes.*

Source: Annual Survey of Hearing Impaired Children and Youth, 1972-1973, 1982-1983, 1985-1986.

7) How may U.S. students are hearing impaired?

The number of hearing impaired students served by federal laws guaranteeing public education to handicapped students has steadily decreased over the past decade (Department of Education, 1987). Since the implementation of PL 94-142 and PL 89-313, the number of students below 21 years of age served by the laws decreased 19 percent, from 87,146 in the 1977-1978 school year to 70,545 in the 1985-1986 school year *(Table 5)*. There are at

least two aspects of these data to be considered in their interpretation. First, the data are reported by primary handicapping condition. Hearing impaired students with a primary handicapping condition other than hearing impairment are not included in the above figures. In addition, the Department of Education Annual Report depends upon state reporting systems for the compilation of national statistics. Thus, the reliability and validity of the state reports may not be consistent.

Table 5- Number of hearing impaired students served by Public Laws 94-142 and 89-313, by primary handicapping condition, 1977-1978 to 1985-1986.

Condition	1977-78	1979-80	1981-82	1983-84	1985-86
Total	----------	85,449	79,029	76,791	70,545
Deaf/Hard of Hearing	87,146	82,873	76,387	74,279	68,413
Deaf/Blind	----------	2,576	2,642	2,512	2,132

Source: Department of Education, Office of Special Education and Rehabilitation Services, Annual Reports to Congress on the Implementation of the Education of the Handicapped Act.

8) How many schools/programs are using the "oral" method versus the "speech and sign" method?

Currently, there are no program level results from the Annual Survey. However, in the 1985 Annual Survey of Hearing Impaired Children and Youth, 65 percent of the students with a reported communication mode were taught with the "speech and sign" method, compared to 35 percent taught with the "oral" method.

9) How many deaf college students are there?

In 1985, there were 140 postsecondary programs specifically designed for deaf students. These programs offer special support services to over 7,000 deaf students on a full or part-time basis. Gallaudet University and the National Technical Institute for the Deaf at Rochester Institute of Technology enroll over 40 percent of this population (Rawlings, Karchmer and DeCaro, 1987). In 1981, there were between 8,000 and 11,000 deaf students in postsecondary level education in the United States. This number includes both full and part-time students (Rawlings and King, 1986).

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